# Research Scientist

Role summary for potential applicants

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| Advertised Job Title**:** | Research Scientist in experimental molecular microbiology |
| Reference Number**:** | 37504 |
| Classification**:** | CSOF5 |
| Salary Range: | AU $92,591 to AU $100,199 plus up to 15.4% superannuation |
| Location**:** | Black Mountain, Canberra, ACT |
| Tenure: | Specified Term until June 2020 |
| Relocation assistance**:** | Will be provided to the successful candidate if required. |
| Applications are open to: | Australian Citizens Only  Australian Citizens and Permanent Residents Only   * All Candidates |
| Functional Area**:** | Research Scientist/Engineer |
| % Client Focus - Internal: | 100% |
| % Client Focus - External: | 0% |
| Reports to the: | Team Leader (Cécile Gueidan) |
| Number of Direct Reports: | No direct reports |

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| **Role Overview:** |
| [Future Science Platforms](http://www.csiro.au/en/About/Future-Science-Platforms) are an investment in science that underpins innovation and that has the potential to help reinvent and create new industries for Australia. FSPs will see us grow the capability of new generation of researchers and allow Australia to attract the best students and experts to work with us on future science. They are strategic investments aimed at developing capacity in areas of identified future importance for Australia. FSPs are both impact and science focused, developing innovative scientific solutions with industry, government and university partners. They support world class, coherent and creative research teams which integrate science and delivery over the long term, looking to the future science needs of CSIRO and our partners with a 5 to 10 year vision.  To position Australia to build a vibrant synthetic biology research and development community to support the bio-based industries and ecoengineering activities of tomorrow, CSIRO has established the [Synthetic Biology FSP](https://research.csiro.au/synthetic-biology-fsp/) (SynBioFSP). Synthetic Biology (SynBio) is the design and construction of biological parts, devices, and organisms (usually based on DNA-encoded componentry); and their application for useful purposes. The SynBioFSP has a mission to develop capacity in synthetic biology within CSIRO and across Australia, in a collaborative and transparent manner. Science capability will be strongly aligned with CSIRO business unit capabilities and will allow CSIRO to deliver novel future outcomes for external partners. The program has a $13 million funding envelope over the first three years. We aim to:   1. Build the foundational capabilities to advance SynBio research, including significant investment in social licence to operate 2. Drive national coordination by making these foundational capabilities widely available to the broad research community, governments, and industry for the development of novel industrial products, pharma, biocontrol agents, and strategies for building ecosystem resilience to environmental change, and 3. Build strong partnerships, collaborations, and connections across the innovation sector to develop these novel products and applications responsibly.   The Synthetic Biology FSP (SynBioFSP) is developing a research portfolio which will be spread across CSIRO and a wide variety of partner organisations (universities, industry, NGOs, other research organisations, etc.), both national and international. The research portfolio is dynamic and will evolve over time on the basis of strategy and performance. Research projects will sit within one or more priority [Application Domains](https://research.csiro.au/synthetic-biology-fsp/application-domains/) (Environment & Biocontrol, Chemicals & Fibres, Organelles & Endosymbionts) and one or more [Science Domains](https://research.csiro.au/synthetic-biology-fsp/science-domains/) (Integrative Biological Modelling, Engineering Novel Biological Components, Assembling Novel Biosystems, Maximising Impact). The SynBio FSP will embed a social and behavioural science agenda to address issues around social licence to operate.  Synthetic biology will provide solutions to many of the challenges we face at the beginning of the 21st century. To have maximal impact, synthetic biology requires a suite of organismal platforms to guide the design and construction of novel biologically-based systems. The symbiotic system represented by lichens could address two major challenges: 1) the need for useful compounds for applications and innovations in pharmaceutical, cosmetic and chemical industries, and 2) environmental degradation. Lichens and synthetic lichens could simultaneously address these problems because they produce a unique array of secondary metabolites and they are self-sufficient in extreme environments, where they do, or could, protect or rehabilitate soils. The main obstacle to exploiting the lichen symbiosis for synthetic biology lies in our general inability to resynthesise lichens in the laboratory. Little is known about the processes by which a lichen forms and, therefore, about how to manipulate or mimic lichen development. The overall objective of this project is to build a platform for reliable resynthesis of a lichen symbiosis by focusing on two aims: 1) creating novel devices to manipulate interactions among symbionts and lichen-colonising microbes, and 2) using ‘omic approaches to characterise key features of lichen development. This role will focus on both aims and will work in conjunction with experts on lichen biology, ‘omics, device design and fabrication, and network modelling to achieve them. |

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| **Duties and Key Result Areas:** |
| * Under the direction of senior research scientists, carry out innovative, impactful research of strategic importance to CSIRO that will, where possible, lead to novel and important scientific outcomes. * Engage with external collaborators from Harvard University and the Australian nanotechnology community to develop expertise in the design and fabrication of micro- and mesoscale devices. * Design micro- and mesoscale devices based on new innovations and use these devices for growth and manipulation of lichen symbionts (fungi, algae and bacteria) in various experiments. * Document cellular changes using various microscopy techniques and collect liquid and/or cellular samples from the devices for collection of genomic, proteomic, transcriptomic, lipidomic and metabolomic data. * Perform quality control and assembly of high throughput sequencing data, as well as the annotation of reference genomes for the fungal and algal study species. * Liaise with internal and external collaborators to collate produced omics data and analyse this data with the help of a systems biology modeller. * Produce high quality scientific articles in international peer-reviewed journals and prepare oral contributions to present at national and international conferences as agreed with your supervisor. * Undertake regular reviews of relevant literature and technologies, contribute to the development of innovative concepts and ideas for further research, and explore potential funding opportunities. * Make a contribution to the effective functioning of the research team and help deliver CSIRO’s organisational objectives and plans. * Work collaboratively with colleagues within your team, the business unit and across CSIRO, to reach objectives. * Communicate effectively and respectfully with all staff, clients and suppliers in the interests of good business practice, collaboration and enhancement of CSIRO’s reputation. * Adhere to the spirit and practice of CSIRO’s Values, Health, Safety and Environment plans and policies, Diversity initiatives and Zero Harm goals. * Undertake relevant learning and development courses and training developed by CSIRO. * Other duties as directed. |

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| **Selection Criteria:** |
| *Under CSIRO policy only those who meet all essential criteria can be appointed*  ***Pre-Requisites:***   * **Education/Qualifications:** A doctorate or equivalent qualification and research experience, in plant or fungal molecular biology, microbiology, or a relevant discipline. * **Research innovation:** A record of scientific innovation and creativity plus the ability & willingness to incorporate novel ideas and approaches into scientific investigations, including these from other disciplines**.** * **Problem Solving:** Proven ability to investigate underlying issues of complex and ill-defined problems and develop appropriate responses by adapting/creating and testing alternative solutions. * **Team work:** The ability to work effectively as part of a multi- disciplinary, regionally dispersed research team, and carry out independent individual research, to achieve organisational goals.   ***Essential criteria***   1. Significant experience with using micro-organisms (preferably fungi or microalgae) in research experiments, including working in sterile conditions, isolating/manipulating single cells, and co-culturing micro-organisms. 2. Demonstrated technical capability in plant and/or fungal molecular biology, including DNA or RNA extractions, high throughput sequencing, and genome assembly. 3. Strong written and oral communication skills including the ability to publish research results, prepare reports and present the results of scientific investigations at national and international conferences and stakeholder meetings. 4. A history of professional and respectful behaviours and attitudes in a collaborative environment. 5. A solid record of publication in quality, peer reviewed journals relative to opportunity.   ***Desirable criteria***   1. Demonstrated experience in systems and/or synthetic biology. 2. Demonstrated experience in proteomics, lipidomics and/or metabolomics. 3. Demonstrated experience with metabarcoding. 4. Demonstrated ability to allocate activities, direct tasks and manage resources to meet agreed objectives at the work unit level. 5. The ability to provide effective coaching and on-the-job training for students and technical staff.   ***CSIRO Values:***  As Australia’s Innovation Catalyst, CSIRO has strategic actions underpinned by behaviours aligned to:   * Excellence in science, * Inclusion, trust & respect, * Health, safety & environment * Deliver on commitments.   In your application and at interview you will need to demonstrate alignment with these behaviours. |

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| **Other Information:** |
| **How to Apply**  Please apply for this position online at [www.csiro.au/careers](http://www.csiro.au/careers). You will need to upload your cover letter and resume/CV as ONE document, expressing your interest in the role and addressing each of the Selection Criteria. Please provide sufficient relevant information to enable the selection panel to assess your suitability against the Selection Criteria. Should your application proceeds to the next step, you may be asked to provide additional information.  If you experience difficulties applying online call 1300 984 220 and someone will be able to assist you. Outside business hours please email: [csiro-careers@csiro.au](mailto:csiro-careers@csiro.au)  **Referees**: If you do not already have the names and contact details of two previous supervisors or academic/ professional referees included in your resume/CV please add these before uploading your CV.  **Contact:** If after reading the selection documentation you require further information please contact:  Dr Cécile Gueidanvia email: [Cecile.Gueidan@csiro.au](mailto:Cecile.Gueidan@csiro.au) or phone: +61 (0)2 6246 5018  **About CSIRO**  Australia is founding its future on science and innovation. Its national science agency, the Commonwealth Scientific and Industrial Research Organisation (CSIRO) is a powerhouse of ideas, technologies and skills for building prosperity, growth, health and sustainability. It serves governments, industries, business and communities across the nation.  Find out more! [www.csiro.au](http://www.csiro.au).  **About the SynBio FSP Future Science Platform**  For more information, see the [Synthetic Biology FSP](https://research.csiro.au/synthetic-biology-fsp/) website. |